



# **Program Executive Office Command, Control, Communications, Computers and Intelligence (PEO C4I) Assured IP C3F C4I Waterfront Conference**

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**PEO C4I**





# Agenda

- ❖ Objectives
- ❖ Overview
- ❖ Configuration
- ❖ Schedule
- ❖ Issues, Risks, & Dependencies
- ❖ BG SATCOM End of Life
  - OTCIXS
  - TADIXS
  - SSIXS



# Assured IP Objectives

- ❖ Assured IP is not a Program of Record (POR)
  - Assured IP is a program integration plan spanning multiple PORs, resource sponsors, and user communities to accomplish the objectives as efficiently as possible
  - Assured IP is a complex integration of interdependent technical, operational, and programmatic challenges and impacts Navy surface ships, USCG, MSC, NAVAIR, and Coalition forces
- ❖ The PR07 Triad meetings and subsequent CNO message significantly altered Assured IP to align the objectives to the budget
- ❖ Primary Objective: Assured IP migrates multiple legacy stove pipe systems to applications on the common IP architecture and is a key enabler of CANES
- ❖ Secondary Objectives: Assured IP is a cost savings plan
  - Short term cost savings through the elimination of NAVMACS and DMS afloat installations
  - Long term cost savings through the elimination of all support for CUDIXS, NAVMACS, the legacy Fleet Broadcast, and all supporting systems ashore and afloat
  - Alignment with and preparation for MUOS and future transport paths
- ❖ Reference: 231855Z JAN 07 CNO WASHINGTON DC



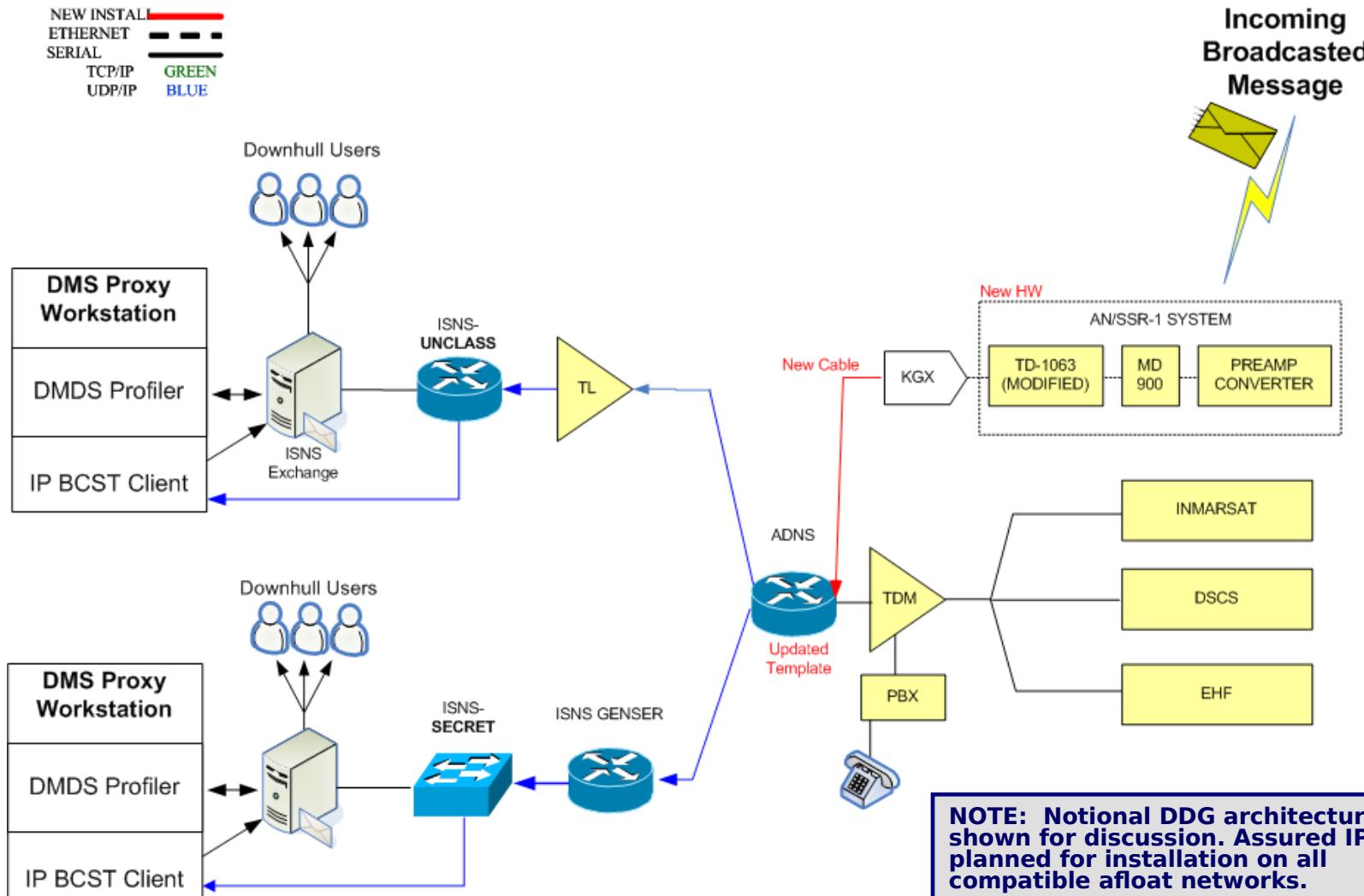
# Assured IP Product Matrix

Ref Msg, 231855Z JAN 07 CNO WASHINGTON DC

Assured IP Product Matrix			
Product / Function		Version	Comments
2 Way Messaging	DMS Proxy <ul style="list-style-type: none"><li>• Replaces NAVMACS, DMS, CUDIXS, &amp; 2-Way FSM</li></ul>	DMDS 6.4 Desktop Validator 4.7.2 CMP 4.7.0.5	<ul style="list-style-type: none"><li>• S/W application on COMPOSE 3.0 (or better)</li><li>• SECRET &amp; SBU Enclaves (not TS)</li><li>• Use any 2-way IP transport path</li></ul>
	ISNS <ul style="list-style-type: none"><li>• SECRET &amp; SBU workstations</li></ul>	ISNS POR workstations	<ul style="list-style-type: none"><li>• Dedicated messaging workstations</li><li>• LAN drop for SECRET &amp; UNCLAS W/S</li></ul>
	Tactical Messaging Gateway (SHORE)	SHORE	<ul style="list-style-type: none"><li>• One suite of equipment for each enclave</li></ul>
IP Broadcast	IP Fleet Broadcast Client software <ul style="list-style-type: none"><li>• Back-up during loss of 2-Way</li><li>• EMCON Messaging</li><li>• High precedence messages only</li></ul>	1.0.0.0	<ul style="list-style-type: none"><li>• S/W application that works with DMS Proxy</li><li>• Will become part of COMPOSE 3.0 (or better)</li><li>• UDP-IP multicast data on broadcast channel</li><li>• Prevents legacy OTAT</li></ul>
	TD-1063 Mod (FC1) <ul style="list-style-type: none"><li>• 2.4 kbps EMCON BCST</li></ul>	FC-1	<ul style="list-style-type: none"><li>• H/W mod to pass IP data thru TD-1063</li><li>• Backwards compatible</li></ul>
	ADNS <ul style="list-style-type: none"><li>• Proteon replacement</li><li>• Interface cable</li><li>• Router and router s/w mod</li></ul>	USQ-144F(V)2 or better	<ul style="list-style-type: none"><li>• Proteon cannot process multicast</li><li>• Interface cable to connect KIV-7M to ADNS</li><li>• Router template change for multicast and serial data</li></ul>
	Tactical Messaging Gateway (SHORE) <ul style="list-style-type: none"><li>• IP Fleet Broadcast Manager</li><li>• EHF LDR Frequency Router</li><li>• OTAM Architecture</li></ul>	SHORE	<ul style="list-style-type: none"><li>• IP Bcst Mgr works with TMG for failover</li><li>• One suite of IP Bcst Mgr equipment for each enclave</li><li>• Over The Air Monitoring (OTAM)</li></ul>
TS	TS Messaging (~ 122 ships) SCI Networks	Incr 1, SA 71491 (or better)	<ul style="list-style-type: none"><li>• No TS Bcst, 2-Way only</li><li>• Carry on suite for some platforms</li></ul>



# Assured IP DD(G) Architecture





# **Current Schedule**

## **NNFE Initiative to reach FOC by FY10**

ID	Task Name	Duration	Start	Finish	2007			2008			2009			2010			2011		
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1	<b>AIP Integration &amp; Management</b>	1618 d	1/2/06	3/14/12															
2	<b>AIP System Testing</b>	1617 d	1/2/06	3/13/12															
3	Risk mitigation testing	5 d	1/30/06	2/3/06															
4	System connectivity test (lab)	25 d	12/11/06	1/12/07															
5	System End-to-End test (lab)	25 d	1/2/06	<b>Lab Demo</b>															
6	2nd SATCOM Channel for IP Bcast	0 d	1/7/09	1/7/09															
7	CONOPS Demo (nominal)	20 d	1/7/09	2/3/09															
8	TS Messaging CONOPS Demo	20 d	7/22/10	8/18/10															
9	<b>IP Transition Period</b>	910 d	9/17/08	3/13/12															
12																			
13	<b>2-Way Messaging</b>	1618 d	1/2/06	3/14/12															
14	<b>Product Development &amp; Test</b>	281 d	1/2/06	1/29/07															
18	Approvals	113 d	3/21/07	8/27/07															
21	<b>Fielding</b>	1175 d	9/12/07	3/14/12					4	3			5		6		26 (4 in FY12)		
26																			
27	<b>Broadcast Messaging</b>	1532 d	4/28/06	3/13/12															
28	<b>Product Development &amp; Test</b>	170 d	1/1/07	8/24/07															
31	Approvals	440 d	4/28/06	1/4/08															
35	<b>Fielding</b>	982 d	6/6/08	3/13/12													51 (5 in FY12)		
40																			
41	<b>TS Messaging</b>	1240 d	1/2/06	10/1/10													ship installations per FY		
42	<b>Product Development &amp; Test</b>	239 d	1/2/07	11/30/07															
45	Approvals	320 d	12/3/07	2/20/09															
48	Field Ashore	0 d	3/31/10	3/31/10													3/31		
49	Field SCI Networks Afloat	1240 d	1/2/06	10/1/10															
50																			
51	ADNS Afloat Proteon Replacement	717 d	1/2/06	9/30/08					3	2			2		3				
52	EKMS Phase V Workstation	785 d	6/1/07	6/3/10					5	8			3						

## **Begin to eliminate remaining NAVMACS**

## **Begin to eliminate NAVMACS afloat for non-TS**

## **EOL NAVMACS & Legacy ashore**



# New Concerns

- ❖ Crypto Mod: The KWR-46 is at end of life and the replacement (KIV-7M) is not funded nor programmed for fleet wide fielding
  - The Crypto Mod Program has taken numerous budget cuts and modernization of all devices is being re-evaluated
  - KWR-46 is not compatible with KIV-7M
    - The IP Fleet Broadcast is either KIV-7M or KWR-46
    - KG-84A is compatible with KIV-7M as interim solution until KIV-7M is fully fielded
- ❖ EKMS Phase V is not funded nor programmed for fleet wide fielding
  - EKMS Phase V is not a direct replacement for legacy OTAT, but provides sufficient capability to give up the legacy OTAT capability
  - Several NAVY & MSC platforms are not Tier 2 EKMS account holders and therefore do not receive EKMS Phase V
  - Technical & CONOPS solution sets exist and are being evaluated to deliver black keymat via:
    - Email attachment
    - Website database
    - Organizational message attachment



# Issues, Risks, & Dependencies

- ❖ We must close the Gaps in the Assured IP Plan
  - Technical, CONOPS, fielding, & funding solution sets are being evaluated
  - Implementation of solution sets require support and cooperation between OPNAV N6F, NNWC, PEO C4I, and the Numbered Fleet Commanders
- ❖ NNFE Initiative to accelerate FOC to FY10
- ❖ The plan requires significant changes to messaging CONOPS
  - The CONOPS documentation and all products must be sufficiently mature to support a successful Operational CONOPS Demonstration on the first attempt
    - No significant changes to any product
    - Minor corrections to be fielded after IP Transition
    - Submarine IP Migration required 3 CONOPS Demonstrations
  - CONOPS requires 2 broadcast channels per AOR until FOC
- ❖ Approval of the Assured IP Cross Domain Solution (CDS) is time consuming and not guaranteed (SSO, ONI, & DISA approval)
  - CDS WG is resolving, ONI sponsorship has been obtained
- ❖ Parallel Dev & Test & Approval & Fielding of multiple independent products
  - Assured IP WG is managing integration
  - NCMC Coordinated Fielding Plan is achievable with stakeholder support
- ❖ Budget Defense - A budget cut that slows the fielding of any of the Assured IP products affects the entire plan
  - OPNAV, NNWC, & PEO Action Officers are working together to protect the budget



# BG SATCOM

- ❖ BG SATCOM End of Life Plan
  - Battle Group Satellite Communications Program
  - ON-143(V)6
  - ON-143(V)14
  - USQ-138 Shore Gateway
- ❖ The BG SATCOM Program was cut in FY07 eliminating support for the ISEA Help Desk



# ON-143 End of Life Transition Plan

Ref: 121725Z FEB 07 CNO WASHINGTON DC

- ❖ All responsibility for the maintenance and support of the BG SATCOM equipment will be transferred to the Fleet (DEPOT) in FY07
  - PMW 760 and the ISEAs are working with the Fleet to most efficiently transfer all relevant support items (references, equipment, software, support systems, and other items) to the DEPOT (SSC-SD 2635)
  - All ISEA and SSA support functions will stand down when the FY07 funding is exhausted (mid April 2007)
    - PMW 760 message to follow
  - Removal and disposal of the equipment will be the responsibility of a future PEO C4I Program installation that requires use of the rack space



# End of Life Transition Plan

## Equipment Impact

### ❖ Impact on Fleet Support

- ON-143(V)6      ~ 966 total units (out of production)
  - Surface Ships    ~ 390 units
  - Submarines      ~ 155 units
  - Shore            ~ 248 units
- ON-143(V)14      ~ 182 total units (in production)
  - Surface Ships    ~ 112 units
  - Shore            ~ 70 units

### ❖ Impact on Foreign Military Sales

- ON-143(V)6      ~ 173 units
  - Australia        ~ 49 units
  - Canada          ~ 30 units
  - England (UK)    ~ 75 units
  - Japan            ~ 13 units
  - Netherlands     ~ 06 units
- ON-143(V)14      ~ 5 units
  - Japan            ~ 5 units
  - South Korea     ~ 9 units
  - Australia        ~ 6 units
  - England (UK)    ~ 2 units



# ON-143 End of Life Transition Plan

## Impact to Circuits

- ❖ Impact on OTCIXS
  - OTCIXS provides a link for the exchange of tactical track data
  - The IP replacement is GCCS-M 3.1.1B (or better) and an IP transport path
    - GCCS-M 3.1.1B (or better) was part of the GCCS-M Y2K solution and is fully fielded on all operational platforms
    - OTCIXS remains the back-up circuit for US ships with unreliable IP connectivity
    - OTCIXS is the only circuit for NAVAIR, and Coalition platforms
  - The Fleet will maintain the equipment to support OTCIXS until use of the circuit is no longer feasible or desired
- ❖ Impact on TADIXS
  - The capabilities provided by TADIXS have been migrated to several IP links and services for US platforms
  - TADIXS is the only circuit for the exchange of TLAM Strike data with some Allied forces
  - IP transport options are being evaluated
- ❖ Impact on SSIXS
  - The Submarine Fleet continues to utilize SSIXS as a back-up for IP messaging and for Allied interoperability (shutdown planning is ongoing)
- ❖ The DEPOT (SSC-SD) can support the ON-143 indefinitely



# Assured IP Responsibilities Matrix

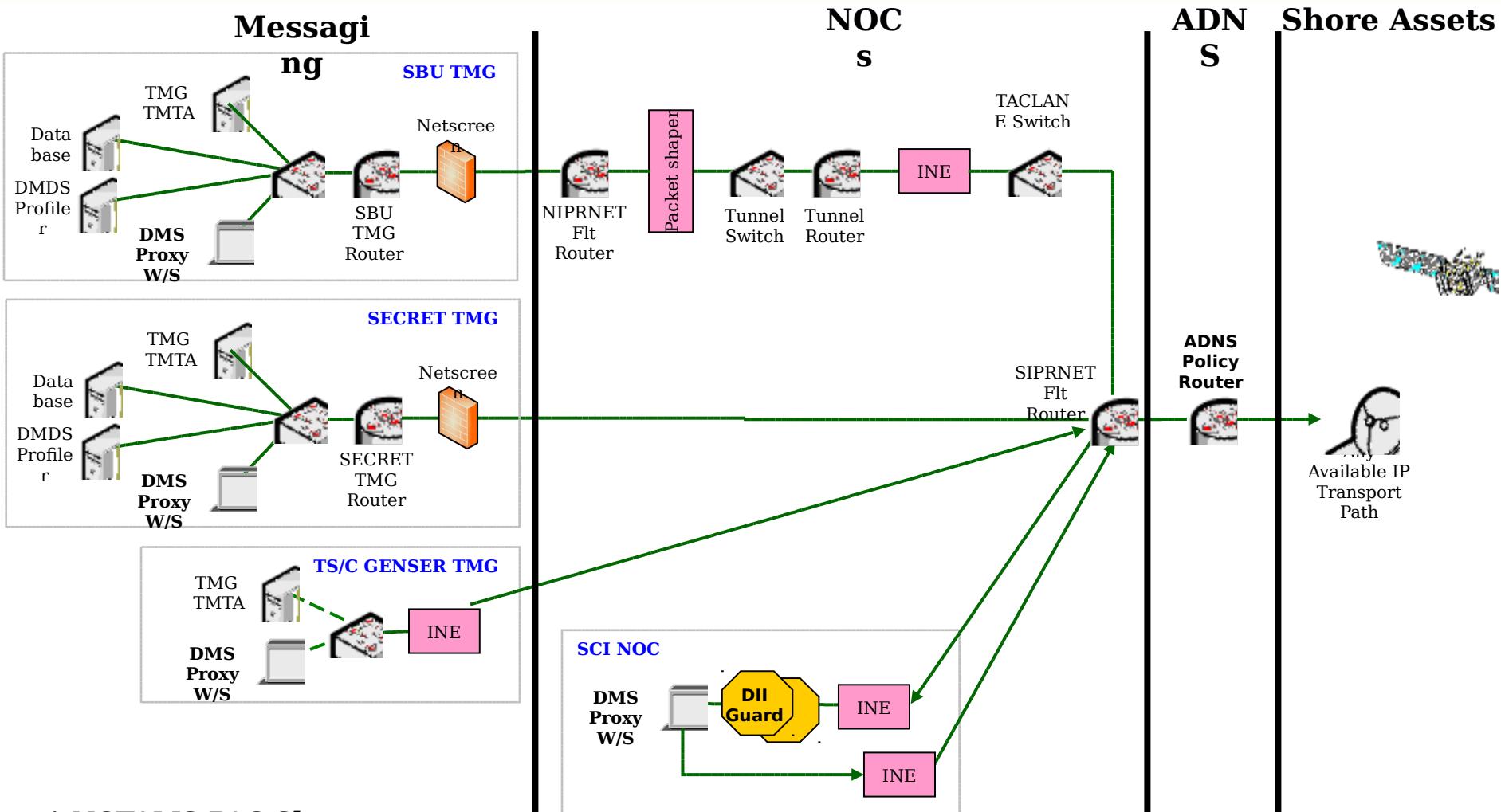
System	Location	Engineering and Design	Implementation, Procurement and Installation Planning	Life Cycle Support (LCS)	PEO	OPNAV	NNWC
IP Integration Management	Ashore & Afloat	PMW 760	PMW 760	PMW 760	Chris Moore	EJ High	John Neidig
DMS Proxy	DMS SW cert/Shore Implementation	DMS	DMS	DMS	Ron Perez	EJ High	Rebecca Goins
	Afloat H/W inst	ISNS	ISNS	ISNS	Allan Oyama	CWO Torres	Joe Hope
	COMPOSE Int.	ISNS	ISNS	ISNS	Pola Diaz		
IP Fleet Broadcast	Shore Bdcst Mgr Inst	DMS	DMS	DMS	Ron Perez	EJ High	Rebecca Goins
	Ashore T x H/W	PMW 790	PMW 790	PMW 790	Diego Martinez	Peter Garcia	John Neidig
	Afloat & Ashore S/W SSA	DMS	DMS	DMS	Ron Perez	EJ High	Rebecca Goins
Top Secret Messaging	Ashore	DMS	DMS	DMS	Ron Perez	EJ High	Rebecca Goins
	Afloat	SCI Networks	SCI Networks	SCI Networks	David Hayashi		
SSR 1 Mod (USQ-122)	Afloat	UHF SATCOM	UHF SATCOM	UHF SATCOM	George Ghosn	Joe Trainor	LCDR Derrick Greg Brindley
Interface Cable	Afloat	ADNS	ADNS	ADNS	CDR Walters	Peter Garcia	John Neidig
ADNS Router Template	Ashore & Afloat	ADNS	ADNS	ADNS	CDR Walters	Peter Garcia	John Neidig
Shore Oversight	Ashore	PMW 790	PMW 790	PMW 790	Diego Martinez	Peter Garcia	John Neidig
EKMS	Ashore & Afloat	EKMS	EKMS	EKMS	Scott McCandless		
Crypto Mod	Ashore & Afloat	Crypto Mod	Crypto Mod	Crypto Mod	CDR Slocum	John Slobnicki	



# Back-up



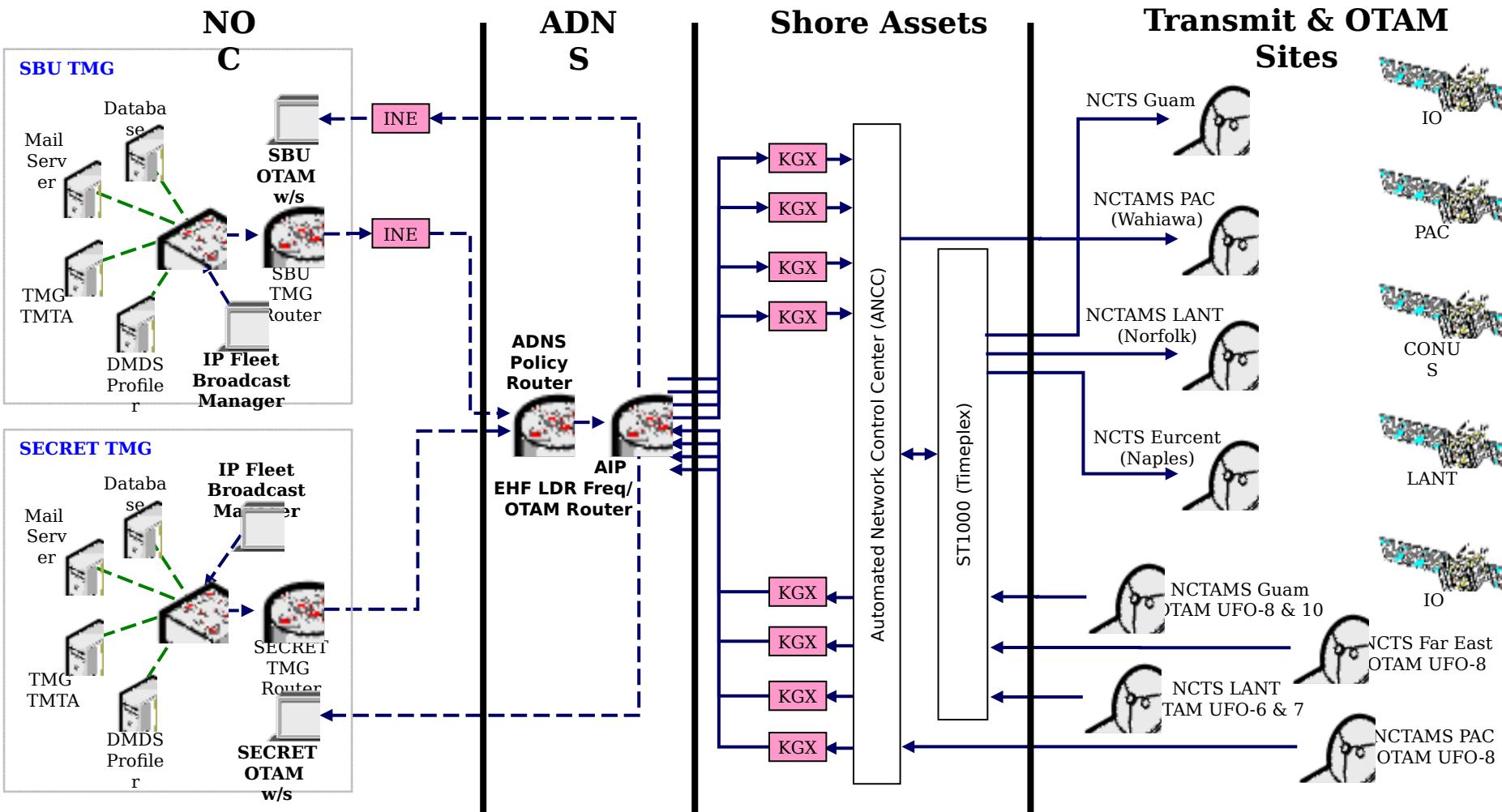
# 2-Way IP Messaging Shore Logic Diagram (Data Flow)



\* NCTAMS PAC Shore  
Representation



# IP Fleet Broadcast and OTAM Shore Logic Diagram (Data Flow)

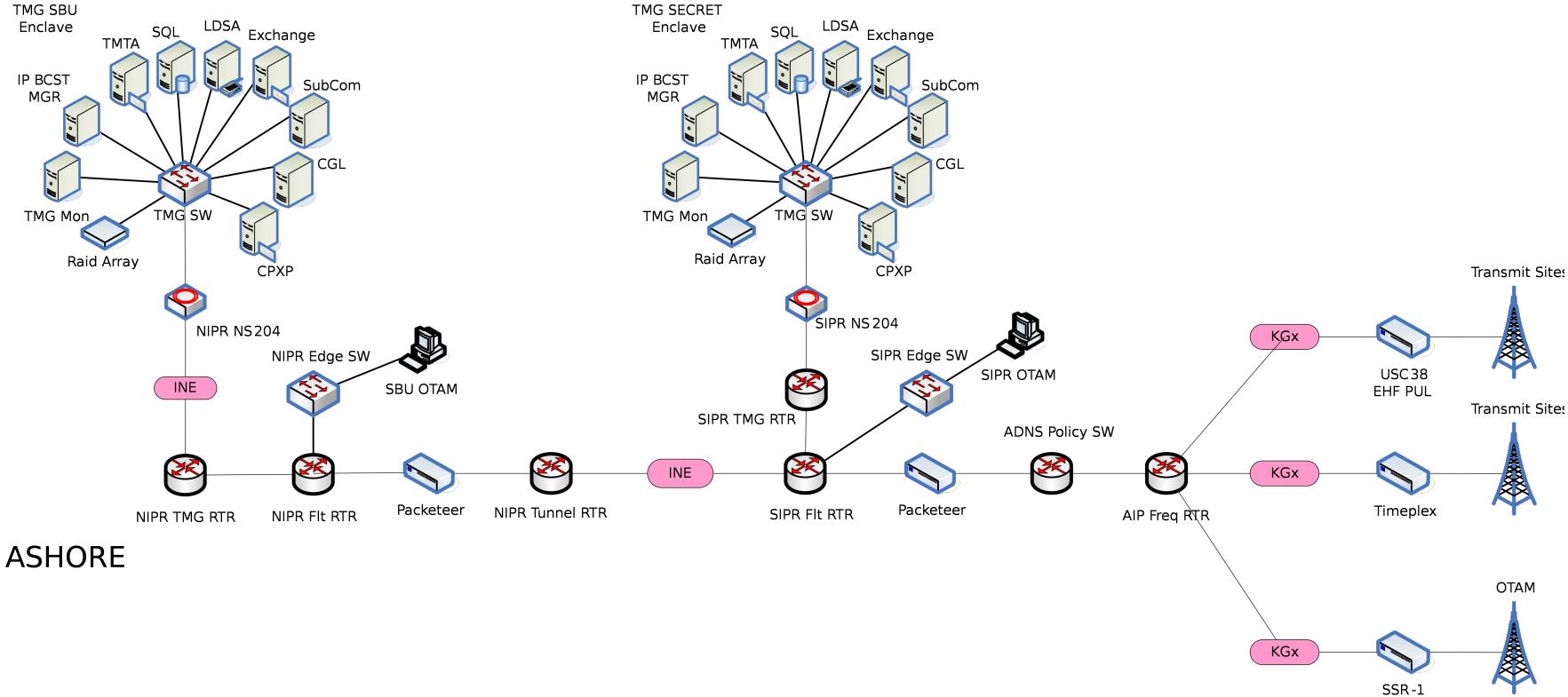


\* NCTAMS PAC Shore  
Representation

ETHERNET — GREEN  
SERIAL — UDP/IP BLUE



# IP Broadcast SV-2



ASHORE



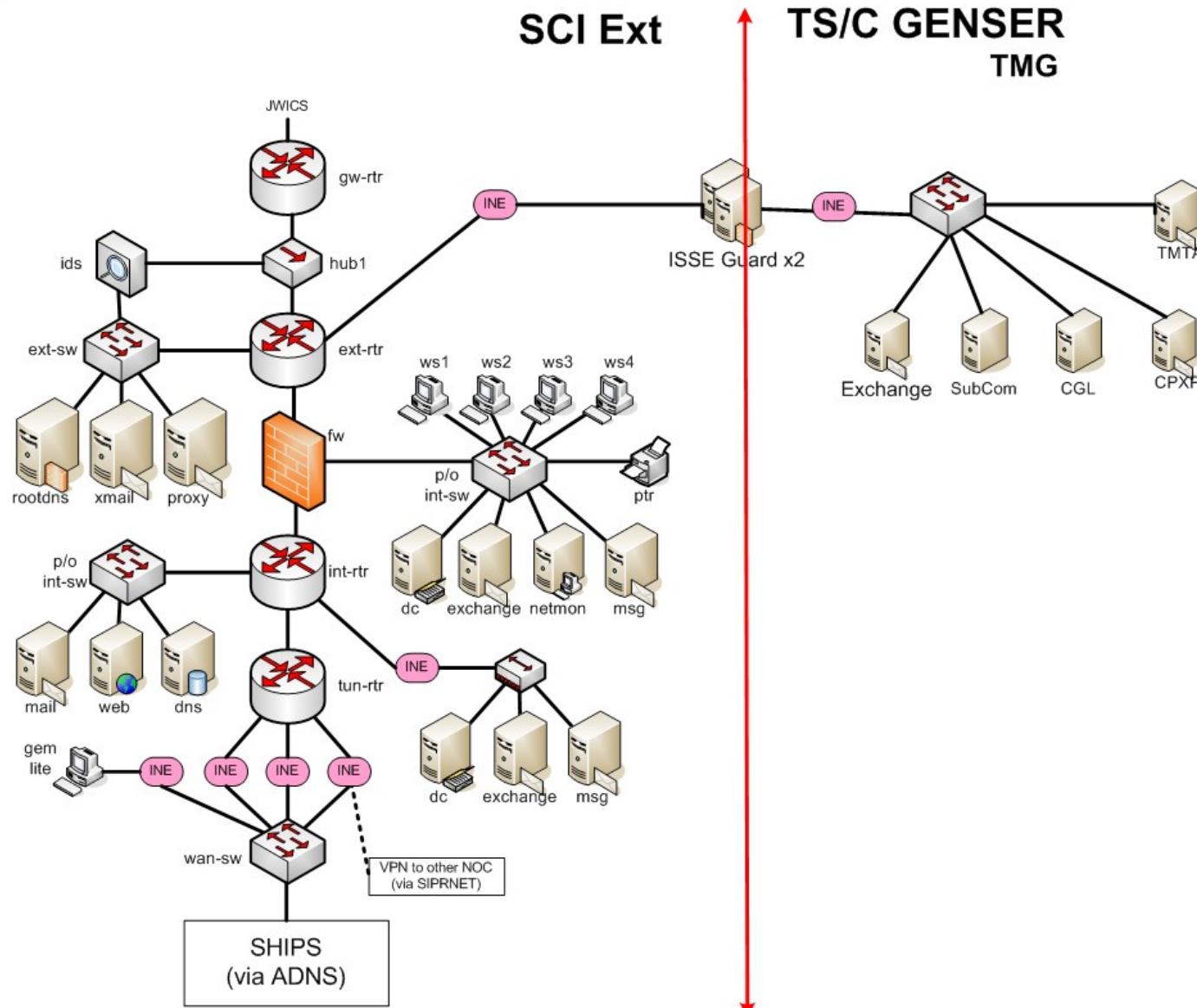
# Assured IP Cross Domain Solution

- ❖ Assured IP CDS WG has been created
  - Shipboard technical solution requires SCI Networks rev
- ❖ Shore Architecture is complex
  - Proposal 1, DMS DII Guard: (Not recommended)
    - Approved for from JWICS to SIPR with the same file types for attachments as those approved for DMS (converted to DMS)
    - SMTP Version of DII Guard is not yet approved by DIA for cross domain from JWICS to SIPR and may be difficult
    - Requires more changes to SCI Networks ashore
  - Proposal 2, ISSE Guard: (Recommended)
    - May be a better choice for SMTP
    - Approved for JWICS to SIPR with most of same file types for attachments as those approved for DMS. Requires human review!
    - Requires fewer changes to SCI Networks ashore



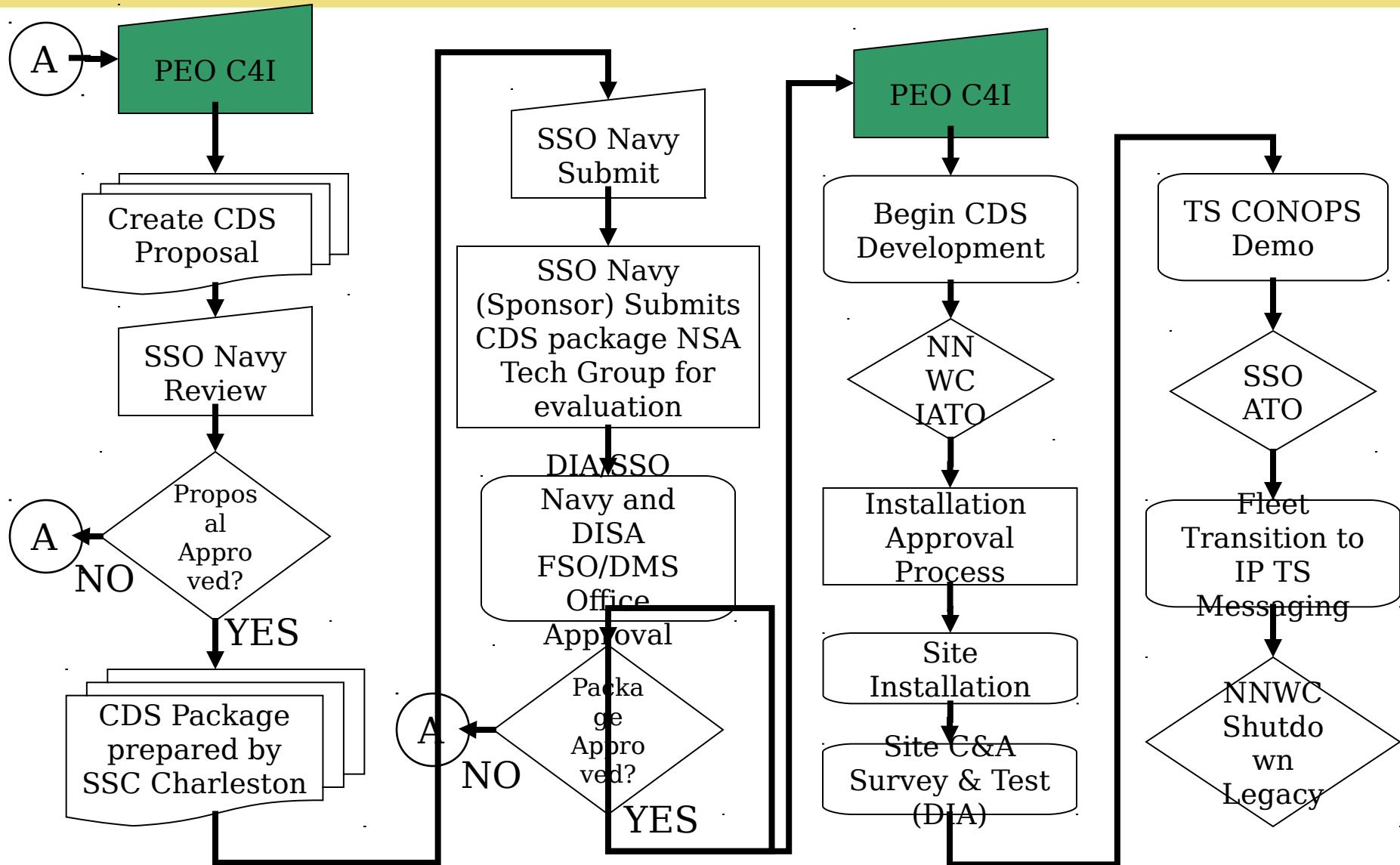
# ISSE Guard Architecture

## Draft Proposal





# Cross Domain Solution (CDS) Approval Process (Draft)





# Assured IP Gap Analysis

- ❖ Many of the ships and platforms affected by Assured IP are not covered by a PEO C4I Program

Gap	Issue	NAVY	USCG	MSC	NECC	TACMOBILE	Allies	Total
Non-ISNS	- COMPOSE workstations fielded & sustained through ISNS - DMS Proxy s/w fielded & sustained through COMPOSE - IP Fleet Bcst s/w fielded & sustained through COMPOSE - Interface Cable fielded through ISNS	23	48	128	35	25	N/A	259
Non-ADNS	Field & Sustain multicast compatible routers	13	44	81	35	25	N/A	198
Non-KIV-7M	KWR-46 is at end of life and the replacement is not funded for full fielding	59	46	125	35	25	N/A	290
Non-EKMS Phase V	- EKMS Phase V is not funded for ALL ships - Some ships are not Tier 2 account holders.	14	0	128	35	25	N/A	202
Non-TD-1063	Technical solution for ships that have EPSBRT is not part of 5/25 kHz POR	6	16	125	35	125	N/A	307